

malleolar region is freely accessible. In order to fulfil these indications the authors have proposed the use of a plaster-of-Paris trough of special design, the foot first being placed in forced adduction. If the œdema of the soft parts is very pronounced, massage and evaporating lotions should be used for several days preceding attempts at reduction. If the fracture is compound, reduction should be preceded by a vigorous disinfection of the wound. 8. The callus almost always is retarded in its consolidation, and so when one removes the plaster trough it is essential to maintain the instep not only laterally but also underneath the arch by a suitable bandage, so as to prevent the secondary deviation to the position of valgus. 9. The muscular atrophy which is peculiar to these articular fractures, and which is spasmodic, demands for its relief an altogether different treatment from that of simple atrophy. All forcible manipulations of the joint and the direct excitation of the muscles by either massage or electricity are absolutely contraindicated. Local sedative applications, with counterirritation over the spine, may prove to be of value. The author's experience shows that static electricity best fulfils this last indication. 10. Union in bad position is a serious condition, and demands surgical intervention for its relief. According to the severity of the case, one may have recourse to either simple or wedge-shaped osteotomy, resection, astragalectomy, and, finally, the wiring together of those fragments which show no tendency to become united.

THERAPEUTICS.

UNDER THE CHARGE OF

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Concerning a New Series of Synthetic Salts of the Nucleids of Iron, Copper, Mercury, and Silver.—Dr. E. R. LARNED gives a summary of the steps which have led up to the commercial production of these new compounds of nucleinic acid and the metals—iron, copper, mercury, and silver. They are known under the trade names of *ferrinol*, *cuprol*, *mercuriol*, and *argol*, respectively. He summarizes their advantages as follows: 1. These new salts of nucleinic acid are rational reconstructives; they are true tonics; they increase physiological resistance; they increase the functional activity of secretory organs. 2. They are powerful germicides, and are not harmful to the tissues. 3. If the present state of our knowledge of the nucleins and leucocytosis is correct, then the nucleid is the proper form for the administration of the metals.—*Therapeutic Gazette*, 1902, vol. xxvi. p. 593.

Peridynamin.—DR. O. LIEBREICH writes on a new iron preparation by this name. In its action it resembles ferratin, and is useful as a hæmoglobin former.—*Therapeutische Monatshefte*, 1902, vol. xvi. p. 423.

The Serum of Trunecek in Arterio-sclerosis.—DR. S. SEHOURIGUINE recalls the serum that Trunecek devised over a year ago for the treatment of arterio-sclerosis. This was: sodium sulphate, 16; sodium chloride, 140; sodium phosphate, 5; sodium carbonate, 7; potassium sulphate, 13; water 1440. The author reports his results obtained with a patient, aged eighty years, suffering from arterio-sclerosis. The symptoms were marked depression and pain over the heart region. During a space of five weeks seven injections were given. The oppression diminished, cyanosis of the lips disappeared, and the old man declared himself young again.—*Thérapeutique moderne Russe*, 1902, vol. v. p. 20.

Agurin: A New Diuretic.—DR. M. SALACOLN has administered to a certain number of patients a new diuretic obtained from theobromine, and called agurin (a double salt of sodium acetate and theobromine). In all of his cases he found a constant increase in the amount of urine passed, with a maximal amount occurring three to five days after the administration of the drug. There was also a slight increase in the arterial pressure. In arterio-sclerosis with cardiac or renal disease the diuresis has been more marked and the beneficial effects more pronounced than in cases of hepatic cirrhosis. The remedy was well borne, and could be employed for several weeks without discomfort. In one case of marked arterio-sclerosis there was gastric irritability. The dose is 7 grains at hour intervals. It can also be given by the rectum.—*Thèse de Paris*, 1902, No. 566.

The Therapeutic Value of the Alkaline Vichy Waters.—DR. OSCAR LIEBREICH speaks of the differences of natural and artificial mineral waters, claiming that no amount of detailed chemical analysis and subsequent compounding can ever duplicate the natural mineral waters. This is due to several factors—inaccuracies of weighing, the presence of bodies which split up and are destroyed in chemical manipulation; and then, again, from the standpoint of manufacturing, the impossibility of obtaining pure products at reasonable prices. Further, nearly all natural mineral waters contain a colloid substance, formerly termed glairin; this has never been reproduced, and in Liebreich's opinion it is of importance therapeutically. In natural waters, also, carbon dioxide exists in two forms—the anhydride and the hydrate. Artificial waters are impregnated only with the anhydride. Of the different Vichy springs, he points out that they are not identical in character, but, broadly speaking, they are very similar with regard to their alkalinity. Nevertheless, the two springs which are mostly used—the Grande Grille and the Célestins—have different therapeutical effects. The modern therapist is bound to take into account the chemical composition of the remedies used, and an ingredient, even when present in very small quantities, is capable of bringing about some action, especially since the presence of other ingredients may cause synergistic action. Of the various diseased or disordered states that are best adapted to treatment by these

mineral waters the author speaks of gout and diabetes mellitus—especially of pancreatic origin—and particularly for the prevention of diabetic coma. In chronic catarrhal diseases of the stomach the alkaline mineral waters have been regarded almost as specifics. They increase peristalsis, diminish the hyperacidity of the mucous glands, and stimulate the production of the digestive ferments. In gastric ulceration in anæmia it is desirable to keep the secretions alkaline by these waters. In Reichmann's disease they are indicated. The Vichy waters are also available in diseases of the liver, particularly in those conditions that favor the formation of gallstones. Other conditions are mentioned by the author, such as albuminuria and certain skin diseases.—*British Medical Journal*, 1902, No. 2180, p. 1159.

Physical Therapy.—DR. FRANZ C. MÜLLER, of Munich gives a complete review of the newer literature on balneotherapy, hydrotherapy, and light therapy.—*Schmidt's Jahrbücher*, 1902, vol. cclxxvi. p. 6.

Dangers of Subcutaneous Gelatin Injections.—DRS. MARGONINER and HIRSCH point out that for a long time pain and a feeling of tension, abscess formation, and fever were considered the only untoward symptoms following the injection of glycerin, until several cases of tetanus were reported, which necessitates extreme care in proper sterilization. The author dissolves 2 grammes in 100 cubic centimetres of warm physiological salt solution and then exposes the flask for one hour to live steam at 100° C. The injection must be made by means of a syringe which permits of perfect sterilization. The results were very satisfactory, and gelatin was found to be an excellent hæmostatic especially in prolonged cases of hæmoptysis. The emboli which occasionally have been reported are not the result of the gelatin, but may follow any subcutaneous injection.—*Therapeutische Monatshefte*, 1902, Heft vii. S. 334.

X-ray Treatment of Carcinoma.—DRS. WALLACE JOHNSON and WALTER H. MERRILL publish a table showing that of 16 cases of epithelioma treated, regardless of their length of existence, extent of tissue involved, and previous treatment, 10 patients, or 62.5 per cent., are apparently cured; and, in addition, 4 cases, or 25 per cent., show improvement, and 3 of these give promise of ultimate recovery under further treatment. Only 2 cases, or 12.5 per cent., failed to derive benefit from the treatment other than alleviation of pain and diminution of discharge. Of 7 carcinomas treated, all of which were classified as inoperable by the surgeons, none showed any improvement beyond relief from pain and probably a temporary delay in the final fatal termination. Lupus vulgaris can be cured, fibromas show no change at all. Three or four semiweekly exposures of four to five minutes' duration were sufficient to produce a reaction.—*American Medicine*, 1902, vol. iv. p. 217.

Drops as Dose Measures.—DR. M. I. WILBERT publishes several tables which show that little or no uniformity can be expected in comparative results on the number of drops to be obtained from different dropping surfaces. The irregularities are so apparent and so great that they suggest that every dropping surface is a law unto itself with each and every liquid. A reasonable

and practical standard would be to accept a drop of water as being equivalent to the tenth part of a gramme. This would be a convenient number to remember and would be in harmony with the metric system, and, in addition to this, it would represent the most readily obtained drop of water, dropping in seconds from the greatest variety of dropping surfaces. Then, too, all possible error would be on the side of safety. From the writer's experience it would appear that the difference in the space and thickness of the lip of a vial is a greater factor in the size of the resulting drop than the quantity of liquid it contains, and a rough or ground-glass surface offers more attraction for the spread of a liquid and would give a larger and more uniform drop of water than one that is quite smooth. A clean, smooth surface, however, would give more uniform and larger drops than one coated with even the slightest trace of fat or oil. Of course, it would be most simple to do away with drops entirely, but for potent remedies which are constantly increased or decreased in dose they are indispensable.—*American Journal of Pharmacy*, 1902, No. 8, p. 375.

Relation Between the Chemistry and the Physiological Action of Morphine.—DR. E. VAHLEN, assuming from the large size of the morphine molecule that not all of its atoms take part in its physiological action, has attempted to isolate that physiologically interesting nucleus upon which most of the efficacy depends. In so comparatively new a branch of pharmacology the difficulties of research are obvious, since it is only rarely that by the breaking up of a molecule components are obtained which resemble the mother-substance in effect. More often one common ingredient is found in a number of drugs of the same action and close chemical relation, as in the case of the purin obtained from caffeine, theobromine, and allied alkaloids, upon which most of their action depends. In starting his experiments the author assumed that the phenanthrene nucleus was the chief carrier of its function; and as it seemed desirable to add nitrogen—an important element in most alkaloids—he discovered a synthetic combination of the two, which he named morphigenin. Chemically, it is oxyamido-phenanthrene, and it seems, indeed, as if it closely resembles morphine physiologically—so much so that a readily soluble derivative has been brought on the market under the name of epiosin. There are other products with the same nucleus, and also narcotic in effect, that could be formed, as by the action of zinc chloride giving morphigenin chloride. Several could be obtained by combining sulpho-acids with morphigenin, but no stable compounds resulted from all these experiments, and so their importance is diminished. To manufacture epiosin, one part of morphigenin chloride, with three parts of sodium acetate, twelve parts of absolute alcohol, and one and one-half parts of an aqueous methylamine solution, 33 per cent. in strength, are heated for two hours in the water-bath, with subsequent evaporation and extraction with chloroform. Epiosin, chemically, is a methyldiphenylenimidazol. It melts at 383° F., and is readily soluble in alcohol and chloroform, and its chlorides are soluble in water. When it is injected into frogs the functions of the cerebrum are first paralyzed, and later those of the spinal cord; when injected into dogs, there is a blunting of the sense of pain, not leading to sleep, a sluggish corneal reflex, involun-

tary defecation, urination, and salivation, and a slight rise of blood pressure, with slowed and shallow breathing. The pupillary changes were, unfortunately, not recorded, but no marked myosis occurred. Convulsive twitchings were observed when larger doses were used. On man it showed a ready relief of pain, with sleep and no after-effects. The dose of epiosin chloride is one-seventh to 2 grains, and 4 grains correspond to 1 grain of dionin.—*Archiv für Experimental Pathologie und Pharmacologie*, 1902, Band xlvii. p. 368.

Decomposition of Iodides in the Body.—DR. A. STEPANOW analyzed the different organs for nitrites with sulphanilic acid, naphthylamin, and acetic acid, in order to explain the splitting up of potassium iodide in the body. They were found present in the white substance of the brain, lungs, bronchi, parotid, duodenum, medulla of kidney, suprarenals, testicles, and in the parotids, while in the gray brain-matter, liver, stomach, spleen, cortex of kidney, and blood they could not be detected. The conclusion is drawn that in decomposing the iodides, the nitrites, in conjunction with the carbon dioxide of the tissues, play an important part, but that there are also other factors which are not known.—*Archiv für Experimental Pathologie und Pharmacologie*, 1902, Band xlvii. p. 411.

Some Principles of the Brain of the Horse.—DR. A. BETHE was able by the following method to isolate several new principles occurring in the central nervous system of the horse. The brain and spinal cord of recently slaughtered animals were freed as much as possible from membranes and large vessels, comminuted, and triturated with water containing much copper chloride until a distinct green color remained after several days. Potash lye up to a distinct violet color was then added, and, on the following day, alcohol and hydrochloric acid, which removed biuret, cholesterol, and certain bodies containing phosphorus, which can easily be isolated. The residue was again treated with potash lye, acidified with acetic acid, and dehydrated with alcohol. On dissolving in chloroform, concentrating, and dropping into ethylic ether, a fine green precipitate resulted, while the ether itself took on a dark green color. The precipitate was found to consist of three definite substances: (a) *Amidocerebrininic acid-glycoside*, easily soluble in benzol, chloroform, and hot alcohol, insoluble in ethylic and petroleum ether. On boiling with water it also dissolved in this, yielding an opalescent, gelatinous solution. Precipitation occurred with barium in hot alcoholic and with copper in slightly alkaline or acid solutions. The melting point was found to be 354° F., and analysis gave the following figures: C = 70.19, H = 11.08, N = 1.86. By boiling with hydrochloric acid, sugar (galactose), an acid free from nitrogen (cerebrininic acid), and a nitrogenous principle (cerebrininic acid amide) resulted. (b) *Phrenin*, soluble in hot alcohol, insoluble in ether, and precipitating well with barium, but not with copper. The melting point could not be definitely determined, but seemed to lie somewhere between 190° and 213° F. The elementary analysis gave C = 71.9, H = 11.95, N = 1.45, and it seemed as if the substance represented an amido-acid, or an acid amide with a free acid molecule. (c) *Cerebrinin-phosphoric acid*, a neutral, crystalline body, soluble

in hot alcohol and ether and in chloroform, and melting at 321° to 323° F. By boiling with hydrochloric acid it split up into five distinct substances: (1) Galactose, (2) phosphoric acid, (3) cerebrinic acid, (4) amido-cerebrinic acid, and (5) a nitrogenous water-soluble principle.—*Archiv für Experimental Pathologie und Pharmakologie*, 1902, Band xlviii. p. 73.

PEDIATRICS.

UNDER THE CHARGE OF

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The Leucocyte Count in the Diagnosis of Diseases of Children.—GEORGE DOUGLAS HEAD (*Archives of Pediatrics*, April, 1902, p. 253) calls attention to the value of leucocyte counts in the differential diagnosis of certain diseases of early life. From the conclusions of various observers it is probable that in healthy infants a mild degree of leucocytosis occurs during the first year of life, and this is somewhat diminished during the second year; but beyond the age of two years in healthy children the count is not different from that of adults. From one to two years the count may be of considerable value if one is careful to exclude the leucocytosis of digestion; but even at this age the chief value of the procedure must be to assist in the identification of such diseases as are characterized by a diminution rather than an increase in the leucocytes. This group of diseases includes typhoid fever, influenza, measles, malarial fever, and miliary tuberculosis, and, perhaps, tuberculous meningitis. Beyond two years of age the leucocyte count in diseases of children is as invariable and as fixed as in diseases of adult life.

In typhoid fever in children the low leucocyte count is constant, being raised above the normal figure only in the presence of complications. If in a case of suspected typhoid fever in a child the count is over 10,000, the diagnosis of uncomplicated typhoid fever cannot be entertained, and a complication is to be looked for whether the symptoms indicate it or not. But the count is of most value when the clinical symptoms have narrowed the diagnosis to a choice between typhoid fever, on the one hand, and meningitis, osteomyelitis, appendicitis, or some other infection; for in all the latter group there is an increase of the white blood count.

In adults typhoid hemorrhage or perforation is followed by a prompt rise in the number of leucocytes. There are, however, numerous exceptions to the rule, and practically the knowledge furnished by the white count is this: if, in a case of typhoid fever, symptoms pointing to perforation or hemorrhage are observed, a rise in the leucocytes strengthens the evidence that perforation or hemorrhage exists. While none of the cases in the series of children's